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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/538,470

06/09/2005

Eiji Iwamura

TIP 036

3641

23408

7590

07/10/2008

GARY C. COHN, PLLC

P. O. Box 313

Huntingdon Valley, PA 19006

EXAMINER

MCCRACKEN, DANIEL

ART UNIT

PAPER NUMBER

1793

NOTIFICATION DATE

DELIVERY MODE

07/10/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

garycohn@seattlepatent.com

| | | | |
|------------------------------|--|--------------------------------------|--|
| Office Action Summary | Application No. 10/538,470 | Applicant(s) IWAMURA, EIJI | |
| | Examiner DANIEL C. MCCracken | Art Unit 1793 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/13/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Citation to the Specification will be in the following format: (S. # : ¶/L) where # denotes the page number and ¶/L denotes the paragraph number or line number. Citation to patent literature will be in the form (Inventor # : LL) where # is the column number and LL is the line number. Citation to the pre-grant publication literature will be in the following format (Inventor # : ¶) where # denotes the page number and ¶ denotes the paragraph number.

Remarks

Applicant's preliminary amendment dated 6/9/2005 has been received and will be entered. Claims 1-10 are acknowledged as pending.

Drawings

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the micrographs are unintelligible. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The reference teaches each and every limitation of the rejected claims. The pinpoint citations are in no way to be construed as limitations of the teachings of the reference, but rather illustrative of particular instances where the teachings may be found.

Claims 1-5 and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by US Statutory Invention Registration H1,924 to Zabinski, et al.

With respect to Claims 1-4 and 7-10, Zabinski teaches amorphous carbon composites with the claimed metals. *See generally* (Zabinski 2: 60 *et seq*) (composites/"amorphous carbon"), (Zabinski 3: 25-32) (metals). Note the composition limitations are taught at (Zabinski "Table 1"). Given the substantial similarity in processes, it is expected that all claimed properties are taught. Note also the extensive discussion and relationships related to density and compositional control. *See* (Zabinski col. 4). Given the compositional makeup is taught, it is expected that any hydrogen storage capabilities or properties (to the extent they are to be given patentable weight) are necessarily taught. "[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on inherency' under 35 U.S.C. 102, on prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted]." The burden of proof is similar to that required with respect to product-by-process claims. *In re Fitzgerald*, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)).

With respect to Claim 5, Zabinski teaches room temperatures (i.e. less than 773 K). Zabinski appears to recite the same magnetron supporting apparatus described at (S. 8: 25 *et seq.*) As such, Zabinski is being interpreted as “gas phase synthesis.”

Claims 1-2, 4 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by US 2001/0031346 to Iwamura.

With respect to Claims 1-2, 4, and 8-10, Iwamura recites amorphous carbon and titanium. (Iwamura 5: [0051]). Density differences are reasonably suggested. *See* (Iwamura 4-5, "Table 1") (noting differences in hardness). Given the compositional makeup is taught, it is expected that any hydrogen storage capabilities or properties (to the extent they are to be given patentable weight) are necessarily taught. “[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on inherency’ under 35 U.S.C. 102, on prima facie obviousness’ under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted].” The burden of proof is similar to that required with respect to product-by-process claims. *In re Fitzgerald*, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)).

Claims 1-4 and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Bauer, et al., *Mechanical properties and performance of magnetron-sputtered graded diamond-like*

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carbon films with and without metal additions, Diamond and Related Materials 2002; 11: 1139-1142 (hereinafter “Bauer at ___”).

With respect to Claims 1-2, Bauer discloses amorphous carbon with titanium. (Bauer at 1140, col. 1). Grading of the substrates reasonably suggests areas of different densities. *Id.* As to Claims 3 and 7, the percentages are taught. *See e.g.* (Bauer at 1139, col. 2). As to Claims 4 and 8-10, given the same process appears to have been employed (magnetron sputtering), it is expected that the claimed properties are taught. Given the compositional makeup is taught, it is expected that any hydrogen storage capabilities or properties (to the extent they are to be given patentable weight) are necessarily taught. “[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on inherency’ under 35 U.S.C. 102, on prima facie obviousness’ under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted].” The burden of proof is similar to that required with respect to product-by-process claims. *In re Fitzgerald*, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The references cited teach each and every limitation of the rejected claims. The pinpoint citations are in no way to be construed as limitations of the teachings of the reference, but rather illustrative of particular instances where the teachings may be found. As to the rejection under 35 U.S.C. §§ 102/103, where the applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the Examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/103 rejection. See MPEP 2112 III. (discussing 102/103 rejections). In regards to all the rejections below, it is noted that minor imperfections are encompassed by the claimed lower-density-region. The density of diamond is 3.5 and graphite 2.2. g/cc

Claims 1-5 and 7-10 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US Statutory Invention Registration H1,924 to Zabinski, et al.

The preceding discussion of Zabinski accompanying the anticipation rejection *supra* is expressly incorporated herein by reference. See above with respect to 102/103 rejections.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Statutory Invention Registration H1,924 to Zabinski, et al.

The preceding discussion of Claim 1 accompanying the anticipation rejection *supra* is expressly incorporated herein by reference. To the extent Zabinski *may* not reflect the density regions, Zabinski teaches that density is a function of the deposition rates of the different species. (Zabinski col. 4). Stated differently, density is a function of composition; *i.e.* it is a result effective variable the optimization of which does not impart patentability. *In re Boesch*, 205 USPQ 215, 219 (CCPA 1980).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Statutory Invention Registration H1,924 to Zabinski, et al.

With respect to Claim 6, Zabinski teaches sputtering. *See e.g.* (Zabinski 3: 19). To the extent Zabinski *may* not teach the pressures as claimed, note that Zabinski teaches the effect of pressure on element concentration. *See* (Zabinski 4: 3 – 5: 31; “Fig. 2”). Stated differently, pressure is a result-effective variable, the optimization of which does not impart patentability. *In re Boesch*, 205 USPQ 215, 219 (CCPA 1980).

Claims 1-2, 4 and 8-10 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 2001/0031346 to Iwamura.

The preceding discussion of Iwamura accompanying the anticipation rejection *supra* is expressly incorporated herein by reference. See above with respect to 102/103 rejections.

Conclusion

Applicants IDS is considered relevant to their disclosure.

All amendments made in response to this Office Action must be accompanied by a pinpoint citation to the Specification (i.e. page and paragraph or line number) to indicate where Applicants are drawing their support.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL C. MCCrackEN whose telephone number is (571)272-6537. The examiner can normally be reached on Monday through Friday, 9 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel C. McCracken/
Daniel C. McCracken
Examiner, Art Unit 1793
DCM

/Stuart Hendrickson/
Stuart L. Hendrickson
Primary Examiner